User Manual and
Installation Guide

Air@-EL Series
(Air@-EL150, Air@-EL300)

Laser Optical Video Transmission
System for Elevator CCTV

DANGER-AVOID DIRECT EYE EXPOSURE
AVOID POINTING THE LASER AT PEOPLE OR AIRCRAFT

Qccess
http://www.qccess.com

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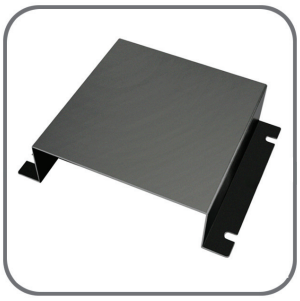
Made In Korea

What is in the box?

Laser Optical
Video Transmitter

Laser Optical
Video Receiver

2 AC/DC Power Adapters.
AC 100-240V, 50~60Hz, 0.3A
Output : DC 12V, 1A



Mounting Bracket
for the Receiver

Safety Warning

WARNING

1. Air@-EL Series is a laser device. DO NOT STARE AT THE LASER LIGHT DIRECTLY or through the optical system when the device is on. It may be harmful to your eyes.

2. Air@-EL Series is a precise optical device. Installation requires professional knowledge. Please consult with a professional who has knowledge and experience in elevator and CCTV for maintenance.

3. Elevator safety is critically relevant to human life. When installing Air@-EL Series, pay special attention to elevator's operation mechanism. Passenger access MUST be restricted or prohibited until the installation is completed. Any problems in wiring, sensors, and switches can result in safety accident including death.

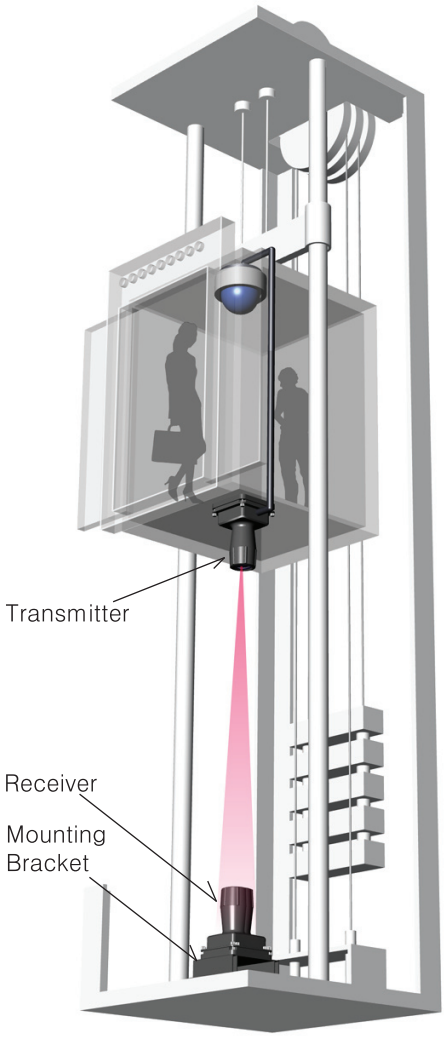
4. Air@-EL Series is not water-proof. Do not place the transmitter and receiver on wet surface or near the water. Rain, snow, or humidity can damage the equipment.

5. Air@-EL Series comes with a mounting bracket made of metal. Pay special attention in handling bracket to avoid injuries from sharp edges. Please use safety gloves.

Air@-EL Series Names of Components

1. Optical Lens
2. Body
3. Permanent magnetic base
4. 4 Screw knobs for adjusting body angle
5. DC Power Input
6. UTP Cable Connector for DVR (Receiver Only)
7. Signal Indicator (Green LED)
8. Power Indicator (Red LED)
9. RCA Connector
   - Transmitter : Video Input
   - Receiver : Video Output

How to install Air@-EL Series under the elevator car



Step 1 : Move the elevator car to the lowest position where it is easy to work under the outer surface of the bottom of the elevator car.

Step 2 : Install CCTV camera inside the elevator car. Run video coaxial cable and the Transmitter power cable along the exterior wall of elevator car. Use a conduit from CCTV camera to the Transmitter to avoid any friction or damage. The power of CCTV camera must be connected according to the camera specifications.

Step 3 : Place the Transmitter with magnetic base on the bottom of shaft. Connect video coaxial cable to the Transmitter. Position of the Receiver and the Transmitter must be well planned before the installation.

Step 4 : Connect the power cable to the Transmitter. Confirm that the Laser light is emitted. Adjust the diameter of circular reflection on floor where the Receiver will be installed. Use the weight and 4 corner screws to fine-tune the angle. Laser light reflection must be a circular shape, not oval shape.

Step 5 : Using the Laser light reflection as guide, install the metallic Mounting Bracket on the floor. The Mounting Bracket and the Receiver should be placed in the center of the Laser light reflection.

Step 6 : Place the Receiver on the Mounting Bracket. Use the leveler and 4 corner screws to make the Receiver horizontal.

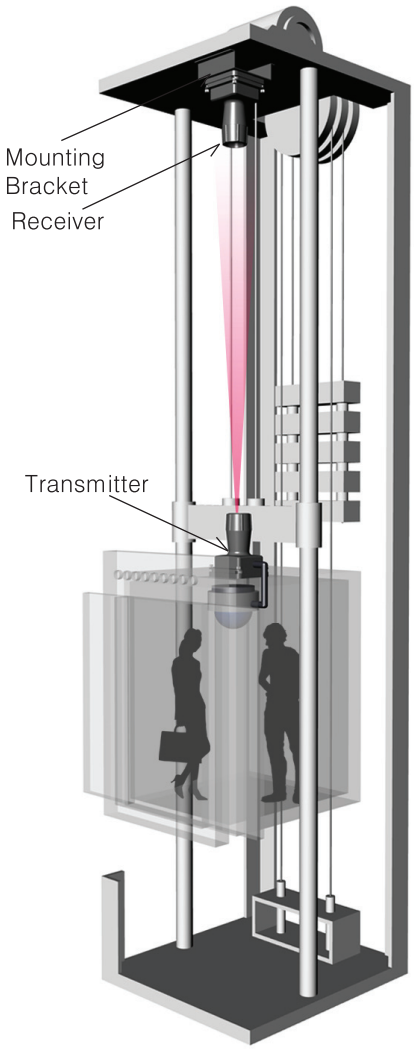
Step 7 : Connect the power cable to the Receiver. Use field monitor to test video transmission. Check the condition of video quality while moving the elevator up floor by floor. If you notice any video noise or disruption, adjust the angle of Receiver with 4 corner screws. The alignment between Transmitter and Receiver must be corrected until the video transmission is good at the highest floor. Repeat adjustment until good video quality is confirmed at all floor levels.

Step 8 : After fine tuning of the alignment is complete, connect the coaxial cable from the Receiver to DVR or display equipment in control room. If the DVR supports UTP, use UTP cable to connect the Receiver to the DVR. Test video monitoring during a regular elevator operation.

Optical axis alignment method between Transmitter and Receiver

It is extremely important to align optical axis between the Transmitter and the Receiver for optimal image transmission since Air@-EL Series is an image data transmission device which uses Laser light. The Receiver needs to be installed where the center of the Receiver lens can be aligned with the center of the Laser light circle from the Transmitter. Please follow the Alignment Instructions.

How to install Air@-EL Series above the elevator car



Step 1 : Move the elevator car to the highest position where it is easy to work on the outer surface on the roof-top of the elevator car.

Step 2 : Install CCTV camera inside the elevator car. Run video coaxial cable and the Transmitter power cable through the elevator roof-top. Use a conduit from CCTV camera to the Transmitter to avoid any friction or damage. The power of CCTV camera must be connected according to the camera specifications.

Step 3 : Place the Transmitter with magnetic base on the roof-top of the elevator car. Connect video coaxial cable to the Transmitter. Position of the Receiver and the Transmitter must be well planned before the installation.

Step 4 : Connect the power cable to the Transmitter. Confirm that the Laser light is emitted. Adjust the diameter of circular reflection on the ceiling where the Receiver will be installed. Use the 4 corner screws to fine-tune the angle. The Laser light reflection must be a circular shape, not oval shape.

Step 5 : Using the Laser light reflection as guide, install metallic Mounting Bracket on the ceiling. The Mounting Bracket and the Receiver should be placed in the center of the Laser light reflection.

Step 6 : Place the Receiver on Mounting Bracket. Use the leveler and corner screws to make the Receiver horizontal.

Step 7 : Connect the power cable to the Receiver. Use the power outlet in the mechanical room for Receiver's power supply. Usually, there are holes between the mechanical room and elevator hoist way. Use a conduit for running power cable from mechanical room to the Receiver on the ceiling.

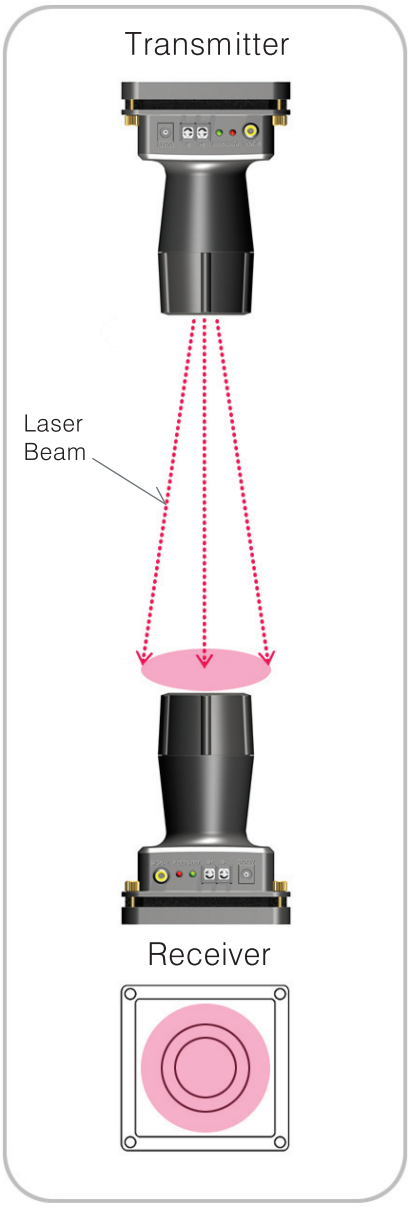
Step 8 : After fine tuning of the alignment is complete, connect the coaxial cable from the Receiver to DVR or display equipment in control room. If the DVR supports UTP, use UTP cable to connect the Receiver to the DVR.

Step 9 : Test video monitoring during a regular elevator operation. Using field monitor to test video transmission, check the condition of video quality while moving the elevator down floor by floor. If you notice any video noise or disruption, adjust the angle of Receiver with 4 corner screws. The alignment between the Transmitter and the Receiver must be corrected until the video transmission is good at the lowest floor. Repeat adjustment until good video quality is confirmed at all floor levels.

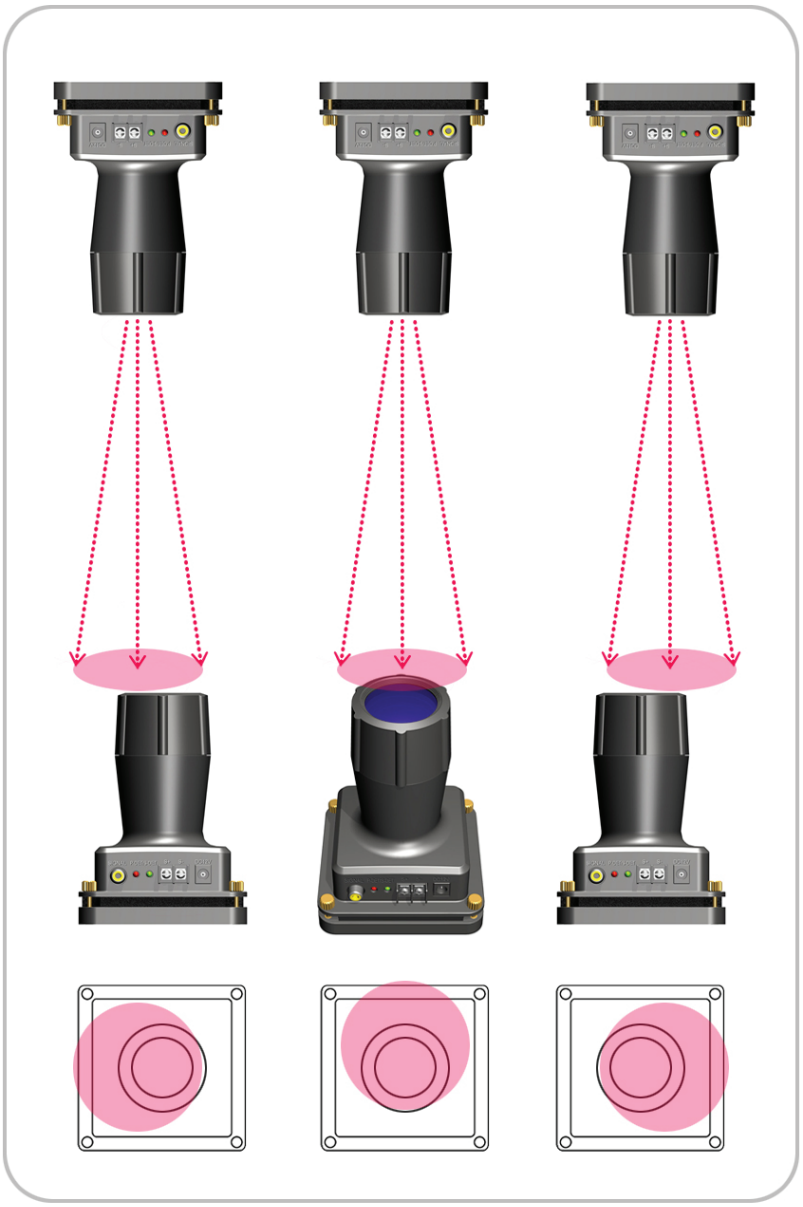
Recommended Operational Distance (Elevator's running distances)

- Air@-EL150 : max up to 150m / 495ft
- Air@-EL300 : max up to 300m / 990ft

Good Alignment

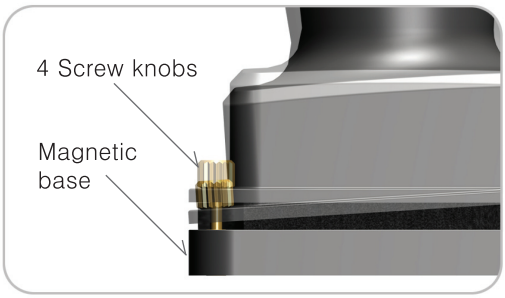


Bad Alignments



Fine adjustment for alignment

Use 4 screw knobs on the magnetic base for fine adjustment of the optical Axis alignment between the Transmitter and the Receiver.



Warranty

1. The limited warranty period of Air@-EL Series is 3 years from the date of purchase.
2. This warranty does not apply to:
   (a) Products subject to abnormal use or conditions, accident, mishandling, neglect, unauthorized alteration, misuse, improper installation or repair or improper storage;
   (b) Products whose label has been removed altered or defaced;
   (c) Damage from exposure to excessive moisture, humidity, temperature;
   (d) Products damaged from external causes such as fire, flood, sand, theft or improper usage of any electrical source.

Specifications

Data Format	I/O Signal Video Format S-Video	NTSC or PAL Composite CVBS Max 1 Vp-p, 75 ohm
Transmitter(250g)	Bit Error Rate Light Source Laser Wavelength Output Power Beam Divergence	$< 10^{-9}$ inGaAlP Laser Diode 658nm 30mW 18mrad
Receiver(257g) of Air@-EL150	Detector Diameter Gain	Silicon Pin PD 5mm > -33dBm
Receiver(257g) of Air@-EL300	Detector Diameter Gain	Si APD 5mm > -45dBm
Power Supply	Input Output	AC 100~240V (50~60Hz) DC 12V, 1A
Operating Temperature		-4 ~ 158°F (-20~70°C)
Dimensions		3.9 x 3.9 x 5.5 inches (W*D*H)

How to solve a problem

Symptoms	Troubleshooting
If there is no image on the monitor or "No Signal" on the DVR monitor	· Check CCTV camera and power adapter first. · Check power adapter of the Air@-EL Series. · Check the power indicator and signal indicator on the Transmitter and the Receiver of Air@-EL Series.
If severe noise appears on the screen	· Check CCTV camera. · Check if the Receiver optical lens has excessive amount of dust. · Check the optical axis alignment between the Transmitter and the Receiver again.
Dust on the Receiver lens	· It is recommended to clean the lens during the safety inspection. · Use a camera lens cleaning brush and do not touch the Receiver body.
Etc.	· Please consult with the distributor for further technical assistance.

FCC-Verification

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Information to the user

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Warning

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.